

MEMORANDUM

TO: Ravalli County Planning Department

FROM: Garrett James Budds, Land Use Clinic, University of Montana
School of Law

DATE: May 16, 2007

RE: Highway 93 Corridor Plan – Residential Lighting Standard

OVERVIEW

With the advent of more technologically advanced and efficient lighting systems, areas which were once dark foresaw a better, brighter future. However, as the lighting revolution continued, negative effects of an overly illuminated landscape began to creep into the spotlight. Ravalli County has not escaped the steady expansion of well-lit society, as evidenced across the floor of the Bitterroot Valley.

Lighting serves a necessary, practical role in many contexts. Many public safety and general welfare concerns are resolved by an adequately lit municipal and county infrastructure. Various architectural and aesthetic features of both residential and commercial structures may be enhanced by proper lighting.

Deeply dark, star-studded skies are synonymous with the open, untouched landscapes of big sky country. The absence of lighting regulations in Ravalli County, however, threatens their continued existence. The concentration of development adjacent to Highway 93 South emphasizes the Corridor as the paramount lighting dilemma. Enacting a Residential Lighting Standard (RLS) within the Highway 93 Corridor (Corridor) is one step in limiting the negative impacts of superfluous, misplaced or improperly installed lighting.

DISCUSSION

General.

Aesthetics and Rural Character. The pronounced pastoral qualities of the Bitterroot Valley are evident to all who travel Highway 93. Each evening, as the sun sets, those scenic rural views are exchanged for an entirely different visual experience. As dusk overtakes farms and ranches, and the silhouette of the Bitterroot Range begins to fade, one's view is taken over by a sea of celestial sights. This spectacular evening display is made possible by the low levels of light pollution the Bitterroot Valley currently enjoys. Unfortunately, this dark backdrop can and will quickly fade into memory as increasing development and the excessive lighting that accompanies new structures infiltrates this formerly rural area. With little exception, new concentrations of structures - and by extension new concentrations of lighting - are located along highway corridors. The I-5 Corridor in both Washington and Oregon provides a prime example of rural valleys accompanied by dark skies that have given way to excessive development adjacent to the highway, and in turn found much of its evening glory sacrificed to artificial illumination.

Light trespass and visual clutter are the major classifications of light pollution compromising the Corridor's rural aesthetic. Measures can be taken to regulate these effects, particularly within the Corridor. Establishing a RLS within the Corridor will help regulate the harmful effects of residential lighting. In doing so, an important component of the Valley's rural aesthetic will be maintained.

Safety. Proper lighting in certain circumstances is an absolute necessity. Without properly illuminated streets and intersections, drivers, pedestrians and wildlife are at risk. However, while providing this much needed public service, streetlights and other forms of safety lighting, can have deleterious collateral effects.

Glare and visual clutter both raise safety concerns within the Corridor. Glare from improperly shielded and/or directed lighting can blind drivers and pedestrians alike. Similarly, excessive lighting may confuse and/or blind motorists. Enacting an RLS reduces the amount of glare and visual clutter emanating from residential lighting. The standard will curtail the nuisance, confusion, and safety concerns associated with inappropriate lighting.

Conservation. Excessive and inappropriate residential lighting is extremely wasteful. In an age where our expenditure of natural resources is of great concern, instituting a RLS would eliminate unnecessary residential lighting and encourage more energy efficient light sources. The negative environmental impact of residential developments within the Corridor would be lessened and more dark sky preserved.

Authority.

County Growth Policy. In Montana, land use regulations, including zoning, must take county growth policies into consideration. "Zoning regulations must be made in accordance with the growth policy or a master plan."¹ Ravalli County will find that both the authority and the necessity to implement a RLS exist in the Ravalli County Growth Policy (Growth Policy).² Several "Countywide Goals" and respective "Countywide Policies" within the Growth Policy address the need for a RLS.

Countywide Goal 4 considers the need for increased infrastructure and public services to accommodate new growth and development, while making sure not to unduly impact the quality, quantity or cost of service to existing residents.³ An increase in residential development within the Corridor will bring with it an inevitable increase in lighting infrastructure. If not planned properly, this increase in residential lighting will certainly impact the quality of residents' current service – namely by negatively affecting the dark space enjoyed by so many. Financial consequences of increased residential lighting infrastructure will also be absorbed by taxpayers. More specifically, Countywide Policy 4.2 instructs the County to "[c]onsider the cumulative impact of development."⁴ The very essence of residential lighting's negative impact is the "cumulative impact" it would have on the County. All new residential lighting within the Corridor, when considered in aggregate with existing lighting, poses a potentially devastating effect on the quality of dark space in the Valley. A RLS follows the mandate of the Growth Policy to consider this cumulative

¹ Mont. Code Ann. § 76-2-203(1)(a) (2005).

² Ravalli County Growth Policy (MT) (2004).

³ Ravalli County Growth Policy (MT) §3.4 (2004).

⁴ *Id.*

impact and enforce measures that would lessen that impact considerably, providing a higher quality of life for all County Residents.

Countywide Goal 7 states very simply that the County must plan for residential and commercial development.⁵ Beyond this very straightforward instruction, Countywide Policy 7.5 speaks with greater specificity, directing the County to “[e]ncourage the use of light fixtures, which minimize light pollution in new development.”⁶ This language leaves little doubt that Ravalli County has the authority to enact a RLS to achieve the goal of minimizing light pollution in new residential developments within the Corridor.

Land Use Clinic - Executive Summary. In addition to the Growth Policy, Ravalli County residents have voiced their approval of increased protections for the rural character of the Bitterroot Valley and the dark space inherent in this pastoral landscape. During the spring of 2006, County residents responded and opinions were documented in the Executive Summary of the Ravalli County Public Meetings on Land Use in the Highway 93 South Corridor (Executive Summary) produced by the Land Use Clinic at the University of Montana School of Law.⁷

Meeting attendees offered many social and environmental values that were “very important” to them, including: clean environment, scenery, rural lifestyle, and community appearance.⁸ Issues also of importance included sustaining the integrity of the natural landscape, the small town and rural environment and the regional/local character of the valley.⁹ Enacting a RLS would address all of the above concerns. Excessive and unregulated residential lighting injects an unnecessary level of light pollution within the Corridor and throughout the valley. Controlling the location, style and placement of residential lighting will help preserve the rural environment, lifestyles, and community appearance in addition to the local character of the valley.

More specifically, a number of respondents voiced concerns over light pollution within the Corridor.¹⁰ That concern was echoed at another public meeting held on November 14, 2006 to discuss land use planning within the Corridor. At this meeting, the problem of excessive lighting within the Corridor and the destruction of “dark space” were specifically mentioned by several attendees. The implementation of a RLS will address these citizens’ concerns.

Application.

The RLS establishes minimum standards for all residential development that occurs within the Corridor. The RLS requires any new residential lighting within the Corridor to be generally compatible with the topography, vegetation, and general character of the neighborhood, the surrounding natural area, and the rural character of the Bitterroot Valley. To accomplish this, the RLS will limit height, type of fixtures, and direction of lighting. The RLS will require shielded bulbs and downcast lighting fixtures to protect views of the Valley and protect the night sky from unnecessary light pollution. The RLS will enforce the

⁵ Ravalli County Growth Policy (MT) § 3.7 (2004).

⁶ *Id.*

⁷ Land Use Clinic, University of Montana School of Law, *Executive Summary, Ravalli County Public Meetings on Land Use in the Highway 93 South Corridor*, May 2006.

⁸ *Id.* at 2.

⁹ *Id.* at 3.

¹⁰ *Executive Summary* at p. 6 and appendix p. B-3.

absolute minimum light usage within the Corridor, including a ban of all lighting within the residential Required Setback.¹¹

The implementation of a RLS will help preserve the natural aesthetic and rural character of Ravalli County while severely limiting the negative effects of unnecessary and irresponsible light usage, including: glare, light trespass, visual clutter and confusion, and artificial sky glow. The standard will benefit all residents who are building structures within the Corridor by reducing energy waste, thereby reducing household energy bills.

SAMPLE STATUTORY LANGUAGE

Policies:

Residential lighting of all types shall be minimized in the Corridor.

Within the Corridor, all light design and installation shall emphasize low-level uniform lighting to avoid the nuisance and hazardous conditions caused by an abrupt change from bright light to darkness.

Residential lighting shall be prohibited within the required Residential Setback Standard (RSS) in order to maintain the natural character and dark space of the Corridor's viewshed.

All residential lighting within the Corridor shall be shielded and directed downward.

A maximum of average horizontal footcandles shall be established in the RLS regulations for any residential structure or throughout property zoned as residential within the Corridor.

Any residential lighting within the Corridor that is mounted (poles, roofs, sides of homes, etc.) shall be limited by maximum height in the RLS regulations.

All landscape lighting on residential property within the Corridor shall be restricted to low level lighting, shielded and directed downward, and not exceed the maximum height in the RLS regulations.

For all residential areas within the Corridor, streetlights shall be limited to intersections and other areas necessary for pedestrian and vehicular safety. All streetlights shall be shielded, directed downward and not exceed the maximum height in the RLS regulations.

¹¹ The Required Setback is contained in the Residential Setback and Landscape Standard (RSLS).

RLS Table of Regulations:

Lighting Category	Minimum Residential Lighting Standard
All Lighting	<ul style="list-style-type: none">• All lighting, including signs, shall be fully shielded and directed downward.
Intensity	<ul style="list-style-type: none">• Maximum 0.5 footcandles for residential structures and landscaping• Wattage Limitations – see attached table
Height	<ul style="list-style-type: none">• Maximum height allowed equal to that of first story of residential structure or 10 feet, the lesser of the two heights
Streetlights	<ul style="list-style-type: none">• Allowed only at street intersections and pedestrian crossings• Maximum height 24 feet• Must be uniform lighting, shielded, directed downward• Maximum two second interval before intersection
Landscaping	<ul style="list-style-type: none">• Maximum height of 4 feet, directed downward
Restrictions	<ul style="list-style-type: none">• All lighting restricted within the minimum Required Setback as set out in the RSLs.